



# Therapeutic Brief

# 33

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## Topic 33: Topical issues - emollients and corticosteroids

Dermatitis is a common skin problem which can at times, be challenging to manage. The use of emollients, and topical corticosteroids when required, are the mainstays of dermatitis management. As older people are predisposed to skin fragility, they may be at an increased risk of adverse effects of corticosteroids. Analysis of the DVA health claims dataset for 2008 found that almost 70,000 veterans are dispensed topical corticosteroids, with the majority of these veterans (73%) receiving potent corticosteroids; of the veterans receiving potent corticosteroids, 92% had no claim for an emollient.<sup>1</sup>

Between April 2008 and March 2010 there were 1.8 million general practice encounters for skin conditions described as dermatitis in Australia.<sup>2</sup> Topical corticosteroids were recommended at a rate of 83 per 100 dermatitis problems managed<sup>3</sup>, but emollients, which can help to reduce the need for corticosteroids<sup>4</sup>, were recommended at a rate of less than 4 per 100.<sup>3</sup>

Optimising skin condition by avoiding trigger factors including irritants and allergens, improving skin hydration with the use of emollients, and suppressing inflammation with the use of topical corticosteroids when required, are the mainstays of dermatitis management. This therapeutic brief encourages use of emollients to improve skin hydration and identifies appropriate use of topical corticosteroids in the management of dry, itchy and inflamed skin.

### Recognition and avoidance of trigger factors

A wide range of skin irritants and allergens has been identified. However, the exact cause of dermatitis in an individual is often difficult to establish. Examples of dermatitis trigger factors are woollen, nylon or elasticised clothing, perspiration, nickel, medicines, deodorants, house dust mites, moulds and animal hair.<sup>5,6</sup> Dry air (which can be a particular problem in residential aged-care facilities and hospitals), over-washing and reduction in production of sebum with increasing age are factors which may lead to dry skin and exacerbate the condition. Advise patients to minimise exposure to any identified trigger factors. Mental stress, secondary infection, as well as rubbing and scratching may worsen inflammation.<sup>7</sup>

**Prescribe topical corticosteroids at the lowest effective potency for the shortest duration necessary to control symptoms<sup>5</sup>, then continue daily use of an emollient for maintenance treatment.<sup>6,10</sup>**

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### Key points

- Emollients are available for veterans on the RPBS but are often underused.
- Emollients are the mainstay of treatment for dry itchy skin.
- The use of emollients can improve skin hydration, decrease exacerbations of dermatitis and complement topical corticosteroid use.
- If there is inflammation, use the least potent topical corticosteroid required to control symptoms, for the shortest duration possible.
- Overuse of potent corticosteroids may cause significant adverse effects, including skin atrophy, striation and increased risk of skin tears and ulceration.
- Most topical corticosteroids only need to be applied once or twice daily.

## ✓ Skin hydration

Dermatitis is usually accompanied by dry skin due to impairment of the skin barrier function.<sup>7,10</sup> The damaged skin barrier increases moisture loss from the epidermis, making it susceptible to irritation which facilitates inflammatory response.<sup>10</sup> Skin hydration is recommended to reduce susceptibility to irritation. Patients can improve hydration by:<sup>5,6</sup>

- applying an emollient immediately after bathing. Additional emollients can be applied liberally and as often as necessary, but at least twice a day.
- using warm water and soap substitute cleansers (see Table 1) for bathing.
- avoiding over-bathing or showering; have short showers.

**Table 1: Examples of emollients, soap substitute cleansers and bath additives available on the RPBS**

emollients	<ul style="list-style-type: none"> <li>• Alpha Keri® Lotion (light liquid paraffin and lanolin oil)</li> <li>• Urederm®, Aquacare H.P.® or Calmurid® cream (10% urea)</li> <li>• Eucerin® ointment (wool alcohols)</li> <li>• Cetomacrogol Aqueous Cream (sorbolene cream) with 10% glycerin or soft paraffin</li> </ul>
soap substitute cleansers	<ul style="list-style-type: none"> <li>• Hamilton® Skin Therapy Wash (light liquid paraffin)</li> <li>• Cetomacrogol Aqueous Cream (sorbolene cream) with 10% glycerin or soft paraffin</li> </ul>
bath additives	<ul style="list-style-type: none"> <li>• Alpha Keri® Bath Oil (light liquid paraffin and lanolin oil)</li> <li>• Hamilton® Skin Therapy Oil (light liquid paraffin)</li> <li>• QV® Bath Oil (light liquid paraffin)</li> <li>• Pinetarsol® Solution (pine tar)</li> </ul>

- avoiding over-washing, even with water alone, as this can remove skin surface lipids and may dehydrate the skin.
- using dispersible oil as a bath additive. Colloidal oatmeal is an alternative product but is not RPBS listed.

When using bath oil or colloidal oatmeal, patients should be advised about taking measures to avoid slipping and falling. For a person at risk of falls, these additives may not be appropriate.



## ✓ The role of topical corticosteroids

Topical corticosteroids are the main topical treatment for acute dermatitis.<sup>6,7</sup> Topical corticosteroids have anti-inflammatory and immunosuppressive actions, and are also antimitotic and vasoconstrictive.<sup>5,8</sup> It is important to consider the diagnosis before prescribing, as evidence of effectiveness is only available for select conditions.<sup>9</sup> In general, topical corticosteroids are appropriate when inflammation, hyperproliferation, or immunologic involvement is evident.<sup>9</sup>

The patient's age and the site and the severity of dermatitis may influence the choice of agent, potency and formulation (e.g. ointment vs. cream vs. lotion), as well as duration of treatment.<sup>5,8,9</sup>

### Which potency to choose?

Clinical anti-inflammatory efficacy of topical corticosteroids has been correlated with their cutaneous vasoconstrictor effect.<sup>11</sup> Topical corticosteroids can be classified into four groups: mild, moderate, potent and very potent (see Table 2).

**Table 2: Potencies and uses of topical corticosteroids (PBS/RPBS available)**

Potencies	Some indications
<b>Mild</b>	
hydrocortisone acetate	1% cream and ointment (30g, 50g; Cortic-DS®, Sigmacort®) facial and flexural dermatitis
<b>Moderate</b>	
betamethasone valerate	0.02% cream (100g; Antroquoril®, Betnovate® 1/5, Celestone-M®, Cortival® 1/5) 0.02% ointment (100g; Antroquoril®, Celestone-M®) 0.05% cream and ointment (15g; Betnovate® 1/2, Cortival® 1/2) mild-to-moderate dermatitis
triamcinolone acetonide	0.02% cream and ointment (100g; Aristocort®, Tricortone®)
<b>Potent</b>	
betamethasone dipropionate	0.05% cream and ointment (15g; Diprosone®, Eleuphrat®) short-term use in severe inflammatory dermatitis
betamethasone valerate	0.1% cream and ointment (30g; Betnovate®)
methylprednisolone aceponate	0.1% cream, ointment and fatty ointment (15g; Advantan®) 0.1% lotion (20g; Advantan®)
mometasone furoate	0.1% cream and ointment (15g, 50g; Elocon®), (15g; Novasone®) 0.1% lotion (30ml; Elocon®, Novasone®)
<b>Very potent</b>	
betamethasone dipropionate	0.05% in optimised vehicle, cream and ointment (30g; Diprosone® OV - not PBS/RPBS listed) severe dermatitis; also useful for dermatitis of hands and feet



The relative potency of topical corticosteroid preparation is dependent on:<sup>5,6</sup>

- > concentration
- > the intrinsic activity of the compound (e.g. betamethasone valerate is not as potent as betamethasone dipropionate)
- > ability to penetrate the barrier of the epidermis, as determined by the vehicle in which it is applied (e.g. ointments are more potent than creams) or the incorporation of absorption-enhancing ingredients (e.g. urea, salicylic acid, propylene glycol)
- > use of occlusion.

Mild potency topical corticosteroids are preferred for treating large surface areas, for longer term application and for older people who have increased skin fragility.<sup>12</sup> They should also be sufficient to reduce inflammation for the initial treatment of face, flexures, groin and under the breasts or armpits. In unresponsive cases, more potent corticosteroids can be used under close supervision.<sup>5,6</sup>

### Which formulation to choose?

The site of skin to be treated and disease extent will influence the choice of formulation of a topical corticosteroid.<sup>5,12-14</sup> Patient preference can affect compliance, so may also influence choice of formulation (see Table 3).

### How often to apply?

Most topical corticosteroids are applied twice daily, apart from mometasone and methylprednisolone, which only need to be applied once daily or less.<sup>5</sup> There may not be significant benefit from more frequent application.<sup>5,9</sup>

### How much to use?

The amount of topical corticosteroid that is required to treat an area of skin in adults can be measured using the 'fingertip unit' (FTU), as shown in Figure 1 of the educational insert.<sup>5</sup> One FTU is the amount of cream squeezed out of a tube (with a standard 5 mm nozzle) onto the tip of an adult's index finger. One FTU in an adult is approximately 0.5 gram. Figure 2 in the insert shows the number of FTU needed for different areas of the body.

It has been suggested that 'apply enough to cover affected areas' using the fingertip unit rule is a more appropriate instruction to patients than 'apply sparingly' or 'apply thinly'.<sup>15</sup> There is a risk that if advice to apply the topical corticosteroid preparations 'sparingly' or 'thinly' (to minimise adverse effects) is given, underuse of topical corticosteroids may occur.<sup>6,15</sup> Some consider this may result in longer treatment periods, or may even result in treatment failures.<sup>15</sup>

### How long to use topical corticosteroids?

When exacerbations occur, short bursts of appropriate potency of topical corticosteroids (e.g. for 7 to 14 days depending on response) may be used.<sup>6</sup> Once the skin inflammation is under control, the patient should be advised to cease topical corticosteroid use and continue with regular use of an emollient for maintenance therapy.<sup>6,10</sup>

For the initial treatment of dermatitis on areas where skin is thicker, such as limbs and trunk, a moderately potent or potent corticosteroid may be used (usually 7 to 14 days).<sup>6</sup> For unresponsive cases or on palms, soles and lichenified areas where skin is thickened by constant scratching, a potent to very potent corticosteroid could be used (the duration of treatment may take up to 3 weeks).<sup>6</sup>

For chronic dermatitis, a topical corticosteroid applied on two consecutive days per week can be used to maintain remission.<sup>5,16</sup>

Long-term application of topical corticosteroids may induce tolerance.<sup>9</sup> With greater potency, there is increased risk of rebound symptoms when topical corticosteroids are withdrawn.<sup>6</sup> Very potent topical corticosteroid (0.05% Diprosone® OV) should generally not be used for more than three weeks continuously without review.<sup>17</sup> It is important to review patients who have been on potent and very potent preparations for prolonged periods. Consider using the least potent product for the shortest effective time. Patients with severe dermatitis not responding to appropriate therapy in primary care, should be referred to a dermatologist.<sup>2,6</sup>

**Table 3: Formulation types and properties of topical corticosteroids**

(adapted from Therapeutic Guidelines 2012 and Roos et al. 2004)

<b>Ointments</b> (very greasy)	<ul style="list-style-type: none"> <li>• More potent and moisturising than creams.</li> <li>• Reserved for chronic conditions where skin is thickened, scaly and dry.</li> <li>• Occlusive, thus enhances greater penetration of drug.</li> <li>• May be less irritant as ointments do not contain preservatives, however they may be more difficult to spread.</li> </ul>
<b>Creams or water-miscible preparations</b> (slightly greasy)	<ul style="list-style-type: none"> <li>• Suitable for moist lesions and acute weeping dermatoses.</li> <li>• May be preferred for hands and face as thicker than lotions, but less greasy than ointments.</li> <li>• Contact allergy to ingredient(s) may occur as creams contain preservatives.</li> </ul>
<b>Lotions</b> (light, non greasy)	<ul style="list-style-type: none"> <li>• Thinner and easier to apply to large, moist or hairy areas, e.g. scalp.</li> <li>• May sting as they contain alcohol.</li> </ul>



## What adverse effects can occur?

When used appropriately and not under occlusion, topical corticosteroids are generally safe. Possible local adverse effects induced by prolonged continuous use or repeated intermittent use include:<sup>6,9,12</sup>

- loss of dermal collagen, leading to skin atrophy, particularly in areas that are naturally sensitive, e.g. flexures and intertriginous areas, as these are more prone to adverse effects
- formation of striae, fragility and easy bruising
- telangiectasia (development of prominent blood vessels)
- steroid rosacea, steroid acne and perioral dermatitis (due to inappropriate use of moderate or potent corticosteroids on the facial area and around the eyes)
- promotion of underlying infection.

**Use of topical corticosteroids, especially high potency products or when applied long-term, should be reviewed in older people as they are predisposed to skin fragility, and hence also increased risk of adverse effects.**

Possible systemic adverse effects include glaucoma and cataract formation, adrenal suppression, electrolyte disturbances, Cushing's syndrome, hyperglycemia and hypertension.<sup>8,12</sup> These are more likely with the overuse of potent topical corticosteroids on sensitive thinner skin, large surface areas or under occlusion.

## Other topical treatments

Tar preparations are useful for dry or lichenified chronic dermatitis but they are low potency and are less acceptable to some patients.<sup>5,6</sup>

Pimecrolimus, a non-steroid calcineurin inhibitor, is approved for use on facial or eyelid atopic dermatitis or when topical steroids are contraindicated.

## Antihistamines

Sedating antihistamines may improve sleep or prevent waking due to excessive itching.<sup>10</sup> However, antihistamines seldom suppress the itch completely and are generally only useful as short-term adjuvants to topical corticosteroid treatment.<sup>5,6</sup> Sedating antihistamines can have short and long-term adverse effects, including confusion, falls, anticholinergic effects and hypotension.<sup>5</sup> Therefore, avoid the use of sedating antihistamines in older people who are predisposed to the above adverse effects as the risks may outweigh any benefit.<sup>18</sup> If needed, short-term use of less-sedating antihistamines can be useful.<sup>6</sup>

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